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| EXAMINER | |
|---|---|
| AMRANY, ADI | |
| **ART UNIT** | **PAPER NUMBER** |
| 2836 | |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

H·A

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/788,962 | LASALANDRA ET AL. | |
| | Examiner | Art Unit | |
| | Adi Amrany | 2836 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *03 July 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments*

1. Applicants' arguments filed July 3, 2007 have been fully considered but they are not persuasive. First, the amendments made to claim 1 do not narrow the claims to overcome the Jeenicke. In the discussion of a plurality of acceleration signals, "any" is equivalent to "at least one" and "any two" is equivalent to "each."

Secondly, applicants' remarks (page 10, lines 6-8) are not persuasive since they are drawn to unclaimed subject matter. The recitation of "any" does not require that only one signal exceed a threshold while the other does not. Even the recitation of "any one" does not necessarily require that only one signal exceeds the threshold. Regardless, as applicants admit (page 10, lines 9-10), Jeenicke discloses that an activation signal is provided when only the transverse sensor exceeds a threshold (and the longitudinal does not). Jeenicke's discussion regarding the longitudinal sensor in side impacts is immaterial since the specific axes are not claimed.

Third, applicants' arguments regarding the combination of references in a §103 rejection of claim 1 is not persuasive, since claim 1 is rejected under §102(b).

Applicants' argument regarding new claims 25-29 is also not persuasive since the discussion of the absolute values fails to take into account Jeenicke's main purpose in detecting forward impacts. In the detection of forward impacts, the absolute values of the Jeenicke sensor signals are compared against two threshold levels. Applicants have not specifically claimed any detection axes or a direction of impact.

***Claim Objections***

2. Claim 25 is objected to because "supply" (line 2, 4) is incorrectly written in the singular tense. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4, 9-11, 13-14, 18 and 21-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Jeenicke (US 5,788,273).

With respect to claims 1 and 9, Jeenicke discloses a portable multidirectional inertial device having a plurality of preferential detection axes (fig 1; col. 1, lines 14-19), comprising:

inertial sensor means (items 10, 12; col. 1, line 65 to col. 2, line 4), which are sensitive to accelerations parallel to said preferential detection axes;

transduction means (items 18, 20);

first comparison means (item 14; col. 2, lines 4-12), supplying a selected logic value when any of said acceleration signals is greater than a respective upper threshold; and

second comparison means (items 22-24; col. 2, lines 15-47), for supplying said selected logic value when any two of said acceleration signals are each greater than a respective lower threshold.

With respect to claim 4, Jeenicke discloses the upper thresholds (Ref 2) are equal to one another, and said lower thresholds (Ref 1) are equal to one another.

With respect to claims 10-11, Jeenicke discloses the apparatus necessary to complete the recite method, as discussed above in the rejection of claims 1 and 4, respectively.

With respect to claim 13, Jeenicke discloses a device, comprising:

an acceleration circuit (items 10, 12) configured to produce a dynamic acceleration signal corresponding to a level of acceleration in each of a plurality of detection axes;

a comparator circuit (items 22-24) for each of the detection axes, configured to compare the respective dynamic acceleration signal with respective higher and lower threshold signals; and

a logic circuit (item 24) configured to produce a selected logic value at an output if the dynamic acceleration signal of any of the plurality of detection axes exceeds its respective higher threshold, or if the dynamic acceleration signals of any two of the plurality of detection axes exceeds their respective lower thresholds.

With respect to claim 14, Jeenicke further discloses a sensor configured to sense acceleration in each of the axes (items 10,12), and a transduction circuit (items 18,20).

With respect to claim 18, Jeenicke discloses two detection axes (10, 12).

With respect to claim 21, Jeenicke discloses the apparatus necessary to complete the recite method, as discussed above in the rejection of claim 13.

With respect to claims 22-24, Jeenicke further discloses the detection axes are at right angles (orthogonal and perpendicular) to each other (longitudinal and transverse).

With respect to claims 25-29, Jeenicke discloses that in forward impacts, the absolute values of the acceleration signals are compared to upper and lower thresholds. Jeenicke discloses that in rear impacts, the acceleration signals are negative (col. 4, lines 31-36). Therefore, in frontal impacts, the accelerations signals are positive, which is equal to the absolute value of that number.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeenicke in view of Woehrl (US 4,836,024).

With respect to claim 2, Jeenicke does not expressly disclose the components of the first comparator means. Woehrl discloses a portable multidirectional inertial device having a plurality of preferential detection axes (fig 1, items A1, A2; col. 4, lines 7-21), wherein the first comparison means (figure 2, items 13, 17; col. 4, line 44 to col. 5, line 6) comprises a respective first comparator (13), which receives the respective one of said upper thresholds (Ref 2) and receives the respective one of said acceleration signals (V), and at least one first logic gate (17), connected to each first comparator.

Jeenicke and Woehrl are analogous because they are from the same field of endeavor, namely multidirectional inertial sensors. At the time of the invention by applicants, it would have been obvious to combine the multidirectional inertial device disclosed by Jeenicke with the first comparison means disclosed by Woehrl in order determine whether each of the acceleration signals have exceeded a threshold level.

With respect to claim 3, Woehrl discloses the second comparison means comprises, for each aces, a second comparator (items 14,16), which receives the respective one of said lower thresholds (Ref 1) and receives the respective one of said acceleration signals (V, V'), and at least one second logic gate (item 18) connected to each comparator.

7. Claims 5, 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeenicke.

With respect to claims 5 and 12, Jeenicke discloses the device according to claims 1 and 10, but does not expressly discloses the ratio between the upper threshold and the lower threshold is substantially equal to $1/\sqrt{2}$. At the time of the invention by applicants, it would have been obvious to one of ordinary skill in the art to set the ratio between the upper and lower thresholds at $1/\sqrt{2}$, since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617, F.2d. 272, 205 USPQ 215 (CCPA 1980).

With respect to claim 17, Jeenicke discloses the transduction circuit comprises two filters (items 18,20). It would be obvious to one skilled in the art that if the Jeenicke transduction circuit comprised only one filter, then the acceleration signals would need

to be produced sequentially since each transduction circuit can only output one signal at a time.

8. Claims 6-8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeenicke, in view of Oguchi (US 2002/0033047).

With respect to claims 6-7 and 16, Jeenicke discloses an inertial sensor means for each of said preferential detection axes, does not expressly disclose said inertial sensor means comprise at least one micro-electro-mechanical sensor with capacitive unbalancing. Oguchi discloses an acceleration sensor comprising a micro-electromechanical sensor with capacitive unbalancing (figure 2; par 41-42).

Jeenicke and Oguchi are analogous because they are from the same field of endeavor, namely acceleration force sensors. At the time of the invention by applicants, it would have been obvious to a person of ordinary skill in the art to combine the multidirectional inertial device disclosed in Jeenicke with the micro-electromechanical sensor with capacitive unbalancing disclosed in Oguchi, in order to use a force sensor with a moveable portion that naturally returns to its original position and can continually operate without constant recalibration.

With respect to claim 8, Jeenicke discloses said transduction means comprises a filter (fig 3, items 23-24; col. 5, lines 20-42) and an A/D converter (item 26). The Jeenicke sensor outputs a voltage signal to the filter. It would be obvious to one skilled in the art to include a I/V converter (a resistor) in a system that uses a inertial sensor means that outputs a current signal in order to convert the signal acceptable to input into the filter. Further, the subtractor node would be obvious to one skilled in the art

since the output of the Jeenicke low-pass filter is equivalent to subtracting the output of a high-pass filter from the original signal.

9. Claims 15 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeenicke, in view of Ishiyama (US 6,738,214).

With respect to claim 15, Jeenicke does not expressly disclose each of the transduction circuits is configured to subtract, from the respective acceleration value, a respective static acceleration value, thereby producing the respective dynamic acceleration signal.

Ishiyama discloses a device comprising an acceleration circuit configured to produce a dynamic acceleration signal corresponding to a level of acceleration on each of a plurality of detection axes comprising both high-pass and a low-pass filters. Ishiyama utilizes the high-pass filter to extract the dynamic acceleration components (falling), while the low-pass filter is used to extract the static acceleration components (gravity) (col. 5, lines 5-31). Ishiyama discloses utilizing a high-pass filter to extract the dynamic acceleration signal (col. 5, lines 5-31). As discussed in the rejection of claim 8, it would have been obvious that a high-pass filter output is equivalent to subtracting a low-pass filter output from the original signal.

Jeenicke and Ishiyama are analogous because they are from the same field of endeavor, namely acceleration detection circuits. At the time of the invention by applicants it would have been obvious to combine the device disclosed in Jeenicke with the filters disclosed in Ishiyama in order to differential between static and dynamic accelerations (Ishiyama, abstract).

With respect to claims 19-20, Ishiyama discloses the device further comprises a portable computer (col. 3, line 11 to col. 4, line 6). The Ishiyama acceleration sensor detects when the device is falling and shuts off sensitive internal components. Further, it would have been obvious to a person of ordinary skill in the art that to combine the device with a cell phone. The motivation for doing so would have been because a cell phone is small portable electronic device that may be dropped and is subjected to internal component damage, similar to a portable computer.

***Conclusion***

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adi Amrany whose telephone number is (571) 272-0415. The examiner can normally be reached on Mon-Thurs, from 10am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (571) 272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AA

7/2/07

MICHAEL SHERRY
SUPERVISORY PATENT EXAMINER